

CLAIMS

1. A laminate material comprising two components, a first thermoplastic polymer substrate and a second thermoplastic polymer film; wherein the film and substrate are directly bonded one to another and where substantially one face or side only of the substrate is laminated with film; and the film has many small flaws generated as a result of the manufacturing process such that in use the resistance of the substrate to a localised impact on a non-laminated face is significantly reduced by the presence of the flaws in the film layer.
2. A laminate material comprising two components, a first thermoplastic polymer substrate and a second thermoplastic polymer blown film; wherein the film and substrate are directly bonded one to another and where substantially one face or side of the substrate only is laminated with film; such that in use the resistance of the substrate to a localised impact on a non-laminated face is significantly reduced by the presence of the film layer.
3. A laminate material according to Claim 2 wherein the polymer blown film is impact modified.
4. A method of making a material according to any of Claims 1 or 3 where thermal bonding is used to directly bond the film and substrate.
5. A method according to Claim 4 wherein the directional impact properties of the material are controlled by adjusting the strength of the thermal bonding.
6. A method according to Claim 5 where the temperature and/or pressure applied to bond the film and substrate are varied in order to adjust the strength of the thermal bonding.
7. A method according to any of Claims 4 to 6 wherein the thermoplastic polymer substrate is a polycarbonate material.
8. A method according to any of Claims 4 to 7 wherein the film is a blown acrylic film.

9. A method according to any of Claims 4 to 8 wherein the film is between 50 and 250 μm thickness.
10. A method according to any of Claims 4 to 8 wherein the film is between 75 and 125 μm thickness.
11. A material made according to the method of any of Claims 4 to 10.
12. A material according to Claim 1, 2, 3 or 11 where the material is in the form of a sheet.
13. A laminate material comprising two components, a first layer and a second thermoplastic polymer layer, bonded to one another; the second layer having a lower resistance to a localised impact than the first layer, prior to bonding; but wherein an impact against the face of the first layer of the laminate enables breakage of the laminate material with a lower impact energy than that required to enable breakage of said first layer prior to bonding.